

**ABSTRACT OF THE DISCLOSURE**

A method and an apparatus for optical inertial measurement includes a body with an optical head mounted on the body. The optical head has at least one optical element creating an optical path to at least one viewing region. A  
5 sensor is in communication with the at least one optical element and adapted to receive images of the at least one viewing region. A processor is provided which is adapted to receive signals from the sensor and perform optical flow  
10 motion extraction of the at least one viewing region. The speed and direction of movement of the body and the orientation of the body in terms of pitch, roll and yaw being determined by monitoring the rate and direction of movement of pixel shift within the at least one viewing region,  
15 sequentially comparing consecutive images and calculating attitude.